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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ZHEN, LI B	

ART UNIT	PAPER NUMBER
2194	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/845,606	MICHAELI ET AL.	
	Examiner	Art Unit	
	Li B. Zhen	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,13-15,23 and 29-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,13-15,23 and 29-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 3, 13 – 15, 23 and 29 – 51 are presented for examination.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/18/2006 has been entered.

Response to Arguments

3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1, 13 and 33 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 13 and 33 are rejected under 35 U.S.C. 101 because they do not produce a useful, concrete and tangible result. The claimed invention as a whole must

be useful and accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Claims 1, 13 and 33 recite a system comprising a distributor, storage elements and a receiver. The claims define what the distributor and receiver is "configured" to do but does not require the distributor and the receiver to perform any functions. Therefore, the system is not performing any function and the claims are only describing the components of the system and what the components are capable of. Without performing any functions, the system will not produce any tangible results. Therefore the claims are non statutory because the claim fails to perform any functions and produce a tangible result.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 – 3, 13 – 15, 29 – 32, 35 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,570,850 to Gutierrez et al. [hereinafter Gutierrez].

8. As to claim 1, Gutierrez teaches a system [system 10; col. 7, lines 19 – 39] comprising:

a distributor [receive scheduler 43; col. 10, lines 5 – 19 and col. 21, lines 54 – 67];

one or more storage elements [buffer store 63 for buffering; col. 21, lines 54 – 67] for storing a data structure [buffer store 63 comprises a plurality of "B" buffers BUF(0) through BUF(B-1); col. 22, lines 1 - 22], the data structure including a plurality of sub-data structures [one buffer BUF(b) associated with the linked list; col. 22, lines 42 – 60] with each of said sub-data structures capable of storing a plurality of stored items of a plurality of items [Each of the buffers BUF(B) can store information from one cell; col. 22, lines 1 – 22]; and

a receiver [transmit scheduler 53; col. 11, lines 22 – 39 and col. 23, line 33 – col. 24, line 2];

wherein the distributor is configured to distribute the plurality of items to be added to the data structure [transfer data from cells received thereby for virtual circuits on a round-robin basis; col. 28, line 48 – col. 29, line 10] among the plurality of sub-data structures in a predetermined sequence order [various virtual circuit identifier lists may be used for the respective tasks, and when a task is enabled for a particular virtual circuit, the identification of the virtual circuit can be appended at the end of the list; col. 30, lines 1 – 25] defined among the plurality of sub-data structures and including each of the plurality of sub-data structures [round-robin basis in order of virtual circuit identifier, the flow control circuit 33 will provide a degree of fairness as among the virtual

circuits; col. 12, line 63 – col. 13, line 9]; and the receiver is configured to receive the items from the plurality of sub-data structures in the sequence order [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25] such that the plurality of items are received by the receiver from the data structure in a first-in the data structure [col. 14, lines 13 – 63], first-out the data structure order [will transmit the cells so that the data in the data portions of the series of cells to conform to the order of data...the destination computer will receive the cells in the same order; col. 4, line 58 – col. 5, line 3 and col. 27, line 60 – col. 28, line 40].

9. As to claim 13, Gutierrez teaches a system [system 10; col. 7, lines 19 – 39] comprising:

one or more storage elements [buffer store 63 for buffering; col. 21, lines 54 – 67] for storing a plurality of data structures [buffer store 63 comprises a plurality of "B" buffers BUF(0) through BUF(B-1); col. 22, lines 1 - 22], each of the plurality of data structures including a plurality of sub-data structures [one buffer BUF(b) associated with the linked list; col. 22, lines 42 – 60] capable of storing a plurality of stored pieces of a plurality of pieces of information [Each of the buffers BUF(B) can store information from one cell; col. 22, lines 1 – 22];

a storage selector configured to select among the plurality of data structures for a particular piece of the plurality of pieces of information [mechanisms for controlling transmission of cells over virtual circuits between respective destination and source

computers 12(m) based on the instantaneous capacity of the switching nodes which form the path for virtual circuit to forward cells for the virtual circuit and the destination computer to receive cells over the virtual circuit; col. 29, lines 10 – 32];

a distributor [receive scheduler 43; col. 10, lines 5 – 19 and col. 21, lines 54 – 67]; and

a receiver [transmit scheduler 53; col. 11, lines 22 – 39 and col. 23, line 33 – col. 24, line 2];

wherein the distributor is configured to distribute each of the plurality of pieces of the information to be added [transfer data from cells received thereby for virtual circuits on a round-robin basis; col. 28, line 48 – col. 29, line 10] to a particular one of the plurality of data structures across the plurality of sub-data structures belonging to the particular one of the plurality of data structures in a predetermined sequence order [various virtual circuit identifier lists may be used for the respective tasks, and when a task is enabled for a particular virtual circuit, the identification of the virtual circuit can be appended at the end of the list; col. 30, lines 1 – 25] defined across the plurality of sub-data structures and including each of the plurality of sub-data structures [round-robin basis in order of virtual circuit identifier, the flow control circuit 33 will provide a degree of fairness as among the virtual circuits; col. 12, line 63 – col. 13, line 9]; and the receiver is configured to receive the items from the plurality of sub-data structures in the sequence order [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25] such that the plurality of pieces of information are received by the receiver from the particular one of

the plurality of data structures in a first-in the particular one of the plurality of data structures [col. 14, lines 13 – 63], first-out the particular one of the plurality of data structures order [will transmit the cells so that the data in the data portions of the series of cells to conform to the order of data...the destination computer will receive the cells in the same order; col. 4, line 58 – col. 5, line 3 and col. 27, line 60 – col. 28, line 40].

10. As to claim 2, Gutierrez teaches each of the sub-data structures includes a linked-list data structure configured for storing items of the plurality of stored items [a plurality of "B" buffers BUF(0) through BUF(B-1) (generally identified by (BUF(b)), which are organized in linked lists; col. 22, lines 1 – 22].

11. As to claim 3, Gutierrez teaches storage for storing a head and a tail of the linked list data structure of each of the plurality of sub-data structures [pointers to the locations of the head and tail of the linked list; col. 8, line 65 – col. 9, lines 40].

12. As to claim 14, Gutierrez teaches each of the sub-data structures includes a linked-list data structure configured for storing pieces of information of the plurality of pieces of information [a plurality of "B" buffers BUF(0) through BUF(B-1) (generally identified by (BUF(b)), which are organized in linked lists; col. 22, lines 1 – 22].

13. As to claim 15, Gutierrez teaches a storage for storing a head and a tail of the linked list data structure of each of the plurality of sub-data structures [pointers to the locations of the head and tail of the linked list; col. 8, line 65 – col. 9, lines 40].

14. As to claim 29, Gutierrez the sequence order is a round robin order among the plurality of sub-data structures [transmit scheduler 53 operates on a round-robin basis; col. 19, lines 21 – 36 and col. 30, lines 1 – 25].

15. As to claim 30, Gutierrez teaches the distributor includes a counter configured to identify the sequence order [buffer count value; col. 22, lines 1 – 22].

16. As to claim 31, Gutierrez teaches the sequence order is a round robin order among the plurality of sub-data structures [transmit scheduler 53 operates on a round-robin basis; col. 19, lines 21 – 36 and col. 30, lines 1 – 25].

17. As to claim 32, Gutierrez teaches the distributor includes a counter configured to identify the sequence order [buffer count value; col. 22, lines 1 – 22].

18. As to claim 35, Gutierrez teaches the distributor is configured to distribute the plurality of items among the plurality of sub-data structures without regard to the content of items of the plurality of items [receive scheduler 43 enables tasks to be performed in connection with virtual circuits on a round-robin basis; col. 18, lines 7 – 37].

19. As to claim 37, Gutierrez teaches the distributor is configured to said distribute the plurality of pieces of the information among the plurality of sub-data structures without regard to the content of piece of the plurality of pieces of the information [receive scheduler 43 enables tasks to be performed in connection with virtual circuits on a round-robin basis; col. 18, lines 7 – 37].

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21. Claims 23, 33, 34, 36 and 38 – 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutierrez in view of U.S. Patent No. 7,002,916 to Parruck et al. [hereinafter Parruck].

22. As to claim 23, Gutierrez teaches the invention substantially as claimed including a method comprising:

(a) receiving a particular piece of information of a stream of pieces of information to be added to a data structure [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25], the data structure including a plurality of sub-data structures [one buffer BUF(b) associated

with the linked list; col. 22, lines 42 – 60] with each of capable of storing a plurality of pieces of information in the stream of pieces of information [Each of the buffers BUF(B) can store information from one cell; col. 22, lines 1 – 22];

(b) adding the particular piece of information to a currently selected one of the plurality of sub-data structures to which to add information [transfer data from cells received thereby for virtual circuits on a round-robin basis; col. 28, line 48 – col. 29, line 10];

(c) advancing the currently selected one of the plurality of sub-data structure to which to add information to a next one of the plurality of the sub-data structure [mechanisms for controlling transmission of cells over virtual circuits between respective destination and source computers 12(m) based on the instantaneous capacity of the switching nodes which form the path for virtual circuit to forward cells for the virtual circuit and the destination computer to receive cells over the virtual circuit; col. 29, lines 10 – 32] to which to add information in a predetermined order among the plurality of sub-structure independent of the stream of information [receive scheduler 43 enables tasks to be performed in connection with virtual circuits on a round-robin basis; col. 18, lines 7 – 37];

(d) removing information from a currently selected one of the plurality of sub-queues to which to remove information [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25];

(e) advancing the currently selected one of the plurality of sub-data structure to which to remove information to a next one of the plurality of sub-data structure [identify the next virtual circuit, in order of virtual circuit identifier, for which a task is enabled, and these operations will be repeated therefore; col. 15, line 55 – col. 16, line 22] to which to remove information in the predetermined order [col. 19, lines 21 – 36 and col. 30, lines 1 – 25]; and

repeatedly performing steps (a)-(c) to add information to the data structure [col. 28, line 48 – col. 29, line 10] and steps (d)-(e) to remove information from the data structure [col. 19, lines 21 – 36 and col. 30, lines 1 – 25] such that pieces of information of the stream of pieces of information are added to data structure and removed from the data structure in the same order [will transmit the cells so that the data in the data portions of the series of cells to conform to the order of data...the destination computer will receive the cells in the same order; col. 4, line 58 – col. 5, line 3 and col. 27, line 60 – col. 28, line 40]. Although Gutierrez teaches the invention substantially, Gutierrez does not specifically teach the data structures and sub-data structures as queues and sub-queues.

However, Parruck teaches receiving a particular piece of information of a stream of pieces of information [VC manager 195 receives all the cells; col. 7, lines 57 – 64] to be added to a queue [queues of queues 200(0) 200(m); col. 7, lines 48 – 58], the queue including a plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58] with each of capable of storing a plurality of pieces of information [data encapsulated in cells or data packets; col. 7, lines 34 – 43] in the stream of pieces of information [VC queue is

a queue of cells received; col. 7, lines 47 – 58]; adding the particular piece of information to a currently selected one of the plurality of sub-queues to which to add information [incoming cells are stored in an input buffer; col. 10, lines 7 – 16], add information in a predetermined order among the plurality of sub-queues independent of the stream of information [maintains the order of the VC queues; col. 12, lines 47 – 67], removing information from a currently selected one of the plurality of sub-queues to which to remove information in the predetermined order [col. 12, lines 47 – 67] and repeatedly performing steps to add information to the queue and steps to remove information from the queue [col. 11, lines 17 – 34].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the features of receiving a particular piece of information of a stream of pieces of information to be added to a queue, the queue including a plurality of sub-queues, add information in a predetermined order among the plurality of sub-queues, and removing information from a currently selected one of the plurality of sub-queues in the predetermined order because this provides for an improved method and apparatus for shaping data communications between communication devices and allow for better traffic shaping to more fully utilize the virtual connections between communication devices [col. 7, lines 3 – 14 of Parruck].

23. As to claim 33, Gutierrez as modified by Parruck teaches a queue for storing items of a stream of information [queues of queues 200(0) 200(m); col. 7, lines 48 – 58

of Parruck] with said items received in a particular order [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez], the queue comprising:

a plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck], each of the plurality of sub-queues capable of storing a plurality of items [data encapsulated in cells or data packets; col. 7, lines 34 – 43 of Parruck];

an enqueue distributor configured to receive said items of the stream of information in said particular order [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez], and configured to distribute said items to the plurality of sub-queues in a predetermined sequence order [various virtual circuit identifier lists may be used for the respective tasks, and when a task is enabled for a particular virtual circuit, the identification of the virtual circuit can be appended at the end of the list; col. 30, lines 1 – 25 of Gutierrez] among the plurality of sub-queues such that each of said items are only stored in a single one of the plurality of sub-queues [transfer data from cells received thereby for virtual circuits on a round-robin basis; col. 28, line 48 – col. 29, line 10 of Gutierrez]; and

a dequeue receiver configured to only receive said items of the stream of information from the plurality of queues in the predetermined sequence order [identify the next virtual circuit, in order of virtual circuit identifier, for which a task is enabled, and these operations will be repeated therefore; col. 15, line 55 – col. 16, line 22 of Gutierrez] and to forward said items in said particular order [col. 19, lines 21 – 36 and

col. 30, lines 1 – 25 of Gutierrez]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the features of receiving a particular piece of information of a stream of pieces of information to be added to a queue, the queue including a plurality of sub-queues, add information in a predetermined order among the plurality of sub-queues, and removing information from a currently selected one of the plurality of sub-queues in the predetermined order because this provides for an improved method and apparatus for shaping data communications between communication devices and allow for better traffic shaping to more fully utilize the virtual connections between communication devices [col. 7, lines 3 – 14 of Parruck].

24. As to claim 44, Gutierrez as modified by Parruck teaches a system for implementing a queue [queues of queues 200(0) 200(m); col. 7, lines 48 – 58 of Parruck], the system comprising:

a plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck], each of the plurality of sub-queues capable of storing a plurality of piece of information to be stored in the queue [data encapsulated in cells or data packets; col. 7, lines 34 – 43 of Parruck];

means for distributing received pieces of information of a stream of information to the plurality of sub-queues in a sequence order [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez] independent of the content of the information being stored in

the queue [maintains the order of the VC queues; col. 12, lines 47 – 67 of Gutierrez] and for causing said distributed received pieces of information to be stored in corresponding sub-queues according to the sequence order [various virtual circuit identifier lists may be used for the respective tasks, and when a task is enabled for a particular virtual circuit, the identification of the virtual circuit can be appended at the end of the list; col. 30, lines 1 – 25 of Gutierrez], the sequence order defining an order of progressing among the plurality of sub-queues [transfer data from cells received thereby for virtual circuits on a round-robin basis; col. 28, line 48 – col. 29, line 10 of Gutierrez];

means for retrieving said distributed and stored piece of information from the plurality of sub-queues in the sequence order [identify the next virtual circuit, in order of virtual circuit identifier, for which a task is enabled, and these operations will be repeated therefore; col. 15, line 55 – col. 16, line 22 of Gutierrez] and forwarding said retrieved information such that the order of received pieces of information in the stream of information is the same as said forwarded stream of information [col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the features of receiving a particular piece of information of a stream of pieces of information to be added to a queue, the queue including a plurality of sub-queues, add information in a predetermined order among the plurality of sub-queues, and removing information from a currently selected one of the plurality of sub-queues in the predetermined order because this provides for an improved method and apparatus for shaping data communications between communication devices and allow

for better traffic shaping to more fully utilize the virtual connections between communication devices [col. 7, lines 3 – 14 of Parruck].

25. As to claim 48, Gutierrez as modified by Parruck teaches a queue for storing items of a stream of information [queues of queues 200(0) 200(m); col. 7, lines 48 – 58 of Parruck] with said items received in a particular order [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez], the queue comprising:

a plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck], each of the plurality of sub-queues capable of storing a plurality of items [data encapsulated in cells or data packets; col. 7, lines 34 – 43 of Parruck];

means for receiving said items of the stream of information in said particular order [transmit scheduler 53 operates on a round-robin basis, in order of virtual circuit identifier; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez], and for distributing said items to the plurality of sub-queues in a predetermined sequence order [various virtual circuit identifier lists may be used for the respective tasks, and when a task is enabled for a particular virtual circuit, the identification of the virtual circuit can be appended at the end of the list; col. 30, lines 1 – 25 of Gutierrez] among the plurality of sub-queues such that each of said items are only stored in a single one of the plurality of sub-queues [transfer data from cells received thereby for virtual circuits on a round-robin basis; col. 28, line 48 – col. 29, line 10 of Gutierrez], wherein items distributed to a

sub-queue are stored in the sub-queue [VC queue is a queue of cells received; col. 7, lines 47 – 58 of Parruck]; and

means for retrieving said items of the stream of information from the plurality of queues in the predetermined sequence order [identify the next virtual circuit, in order of virtual circuit identifier, for which a task is enabled, and these operations will be repeated therefore; col. 15, line 55 – col. 16, line 22 of Gutierrez] and for forwarding said items in said particular order [col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the features of receiving a particular piece of information of a stream of pieces of information to be added to a queue, the queue including a plurality of sub-queues, add information in a predetermined order among the plurality of sub-queues, and removing information from a currently selected one of the plurality of sub-queues in the predetermined order because this provides for an improved method and apparatus for shaping data communications between communication devices and allow for better traffic shaping to more fully utilize the virtual connections between communication devices [col. 7, lines 3 – 14 of Parruck].

26. As to claim 34, Gutierrez as modified by Parruck teaches said items correspond to packets [col. 7, lines 35 – 43 of Parruck]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the feature of packets because this allows for efficient traffic

shaping that better utilizes all the available bandwidth of all the virtual connections [col. 17, lines 37 – 44 of Parruck].

27. As to claim 36, Gutierrez as modified by Parruck teaches said items correspond to packets [col. 7, lines 35 – 43 of Parruck]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the feature of packets because this allows for efficient traffic shaping that better utilizes all the available bandwidth of all the virtual connections [col. 17, lines 37 – 44 of Parruck].

28. As to claim 38, Gutierrez as modified by Parruck teaches said pieces of information correspond to packets [col. 7, lines 35 – 43 of Parruck]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the feature of packets because this allows for efficient traffic shaping that better utilizes all the available bandwidth of all the virtual connections [col. 17, lines 37 – 44 of Parruck].

29. As to claim 39, Gutierrez as modified by Parruck teaches the predetermined order among the plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck] is a round robin order among the plurality of sub-queues [receive scheduler 43 enables tasks to be performed in connection with virtual circuits on a round-robin basis; col. 18, lines 7 – 37 of Gutierrez].

30. As to claim 40, Gutierrez as modified by Parruck teaches the pieces of information correspond to packets [col. 7, lines 35 – 43 of Parruck]. As to the motivation for combining Gutierrez and Parruck, see the rejection to claim 34 above.

31. As to claim 41, Gutierrez as modified by Parruck teaches the predetermined sequence order is a round robin order [transmit scheduler 53 operates on a round-robin basis; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez] among the plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck].

32. As to claim 42, Gutierrez teaches the enqueue distributor includes a counter for use in identifying the predetermined sequence order [buffer count value; col. 22, lines 1 – 22].

33. As to claim 43, Gutierrez as modified by Parruck teaches the enqueue distributor is configured to said distribute the plurality of items among the plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck] without regard to the content of items of the plurality of items [receive scheduler 43 enables tasks to be performed in connection with virtual circuits on a round-robin basis; col. 18, lines 7 – 37 of Gutierrez].

34. As to claim 45, Gutierrez as modified by Parruck teaches the received pieces of information correspond to packets [col. 7, lines 35 – 43 of Parruck]. It would have been

obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Gutierrez to include the feature of packets because this allows for efficient traffic shaping that better utilizes all the available bandwidth of all the virtual connections [col. 17, lines 37 – 44 of Parruck].

35. As to claim 46, Gutierrez as modified by Parruck teaches the sequence order is a round robin order [transmit scheduler 53 operates on a round-robin basis; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez] among the plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck].

36. As to claim 47, Gutierrez teaches the means for distributing received pieces of information includes a counter for use in identifying the sequence order [buffer count value; col. 22, lines 1 – 22].

37. As to claim 49, Gutierrez as modified by Parruck teaches the items correspond to packets [col. 7, lines 35 – 43 of Parruck]. As to the motivation for combining Gutierrez and Parruck, see the rejection to claim 34 above.

38. As to claim 50, Gutierrez as modified by Parruck teaches the sequence order among the plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck] is predetermined and independent of the content of said items of the stream of information [maintains the order of the VC queues; col. 12, lines 47 – 67 of Gutierrez].

39. As to claim 51, Gutierrez as modified by Parruck teaches the predetermined order is a round robin [transmit scheduler 53 operates on a round-robin basis; col. 19, lines 21 – 36 and col. 30, lines 1 – 25 of Gutierrez] among the plurality of sub-queues [VC queues 192(0) 192(k); col. 7, lines 48 – 58 of Parruck].

Conclusion

40. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,424,659 discloses a multilayer switching device for providing wire-speed performance on interfaces in various operational modes.

U.S. Patent No. 7,047,312 discloses a TCP rate control scheme for a shared buffer where the buffer is logically organized into multiple queues.

CONTACT INFORMATION

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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LBZ